

Former Basic Scientist Clearing Air on Port Pollution

AFTER GRADUATING from UC San Diego with a B.S. in microbiology, **KATHLEEN KOZAWA** spent nearly two years working in a laboratory conducting basic research on cancer. At a certain point she decided this wasn't for her. "I wanted to do more applied research," she says. "I wanted to see that what I was doing was making a difference, while still using my science background." Kozawa enrolled in the M.P.H. program in the school's Department of Environmental Health Sciences and immediately knew she had found her calling.

She was particularly interested in the issue of air pollution, volunteering to participate in a field study characterizing the range of children's exposure to diesel exhaust during school bus commutes. Kozawa's professor and the principal investigator of that study, Dr. Arthur Winer, encouraged her to stay beyond her master's education and pursue her doctorate in the school's Environmental Science and Engineering Program. Kozawa graduates this spring, having completed her dissertation research through the California Air Resources Board (ARB). Her study, conducted with Winer and Dr. Scott Fruin, a USC assistant professor, investigated pollution concentrations in the communities adjacent to the ports of Los Angeles and Long Beach. "This is a particular concern because of the enormous growth that's occurred in goods movement through these ports over the last several decades," Kozawa says. "Thousands of dirty diesel trucks are traveling through these neighborhoods on busy streets close to homes, and people's exposure to pollutants is very high." The topic hits home for Kozawa, who grew up in Long Beach.

Her study involved measuring air pollution in these near-port communities by using an electric vehicle as a mobile platform, outfitted with state-of-the-art air pollution monitoring equipment and driven around the neighborhoods at various times to collect the data. Unlike traditional fixed-site monitors, the mobile platform enables researchers to gather data with high temporal and spatial resolution. "This gives us a much better measurement of what people are actually being exposed to, particularly in the near-road areas," Kozawa explains. "We can find out what they're breathing in their own backyard." Her group found the concerns that served as the impetus for the study were valid: Within 150 meters of busy roadways in the port-adjacent communities, pollution levels were at least double what they were at more than 150 meters away.

Kozawa, who continues to work for the ARB as an air pollution specialist, is currently drafting a five-year plan for the mobile platform that will include continued monitoring in the ports area. "The ARB and the ports have adopted aggressive measures to dramatically reduce emissions from diesel trucks in the next five years, and this will be a great way to assess whether these programs are working," she says.

As part of the research in the port-adjacent communities, Kozawa's group held meetings with residents and community leaders. "It was eye-opening to hear their concerns and see their passion about the need to improve air quality in their neighborhoods," she says. The interactions were also a reminder to Kozawa of one of the reasons she chose public health: "It's exciting to be able to see the research I'm doing is having a direct impact on policy and people's lives."



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— Kathleen Kozawa